

CLEARED

Case	Age	Sex	Duration of illness	Onset	Course	Outcome
1	10	M	10 days	Acute	Recovery	Good
2	12	F	15 days	Acute	Recovery	Good
3	14	M	20 days	Acute	Recovery	Good
4	16	F	25 days	Acute	Recovery	Good
5	18	M	30 days	Acute	Recovery	Good
6	20	F	35 days	Acute	Recovery	Good
7	22	M	40 days	Acute	Recovery	Good
8	24	F	45 days	Acute	Recovery	Good
9	26	M	50 days	Acute	Recovery	Good
10	28	F	55 days	Acute	Recovery	Good
11	30	M	60 days	Acute	Recovery	Good
12	32	F	65 days	Acute	Recovery	Good
13	34	M	70 days	Acute	Recovery	Good
14	36	F	75 days	Acute	Recovery	Good
15	38	M	80 days	Acute	Recovery	Good
16	40	F	85 days	Acute	Recovery	Good
17	42	M	90 days	Acute	Recovery	Good
18	44	F	95 days	Acute	Recovery	Good
19	46	M	100 days	Acute	Recovery	Good
20	48	F	105 days	Acute	Recovery	Good
21	50	M	110 days	Acute	Recovery	Good
22	52	F	115 days	Acute	Recovery	Good
23	54	M	120 days	Acute	Recovery	Good
24	56	F	125 days	Acute	Recovery	Good
25	58	M	130 days	Acute	Recovery	Good
26	60	F	135 days	Acute	Recovery	Good
27	62	M	140 days	Acute	Recovery	Good
28	64	F	145 days	Acute	Recovery	Good
29	66	M	150 days	Acute	Recovery	Good
30	68	F	155 days	Acute	Recovery	Good
31	70	M	160 days	Acute	Recovery	Good
32	72	F	165 days	Acute	Recovery	Good
33	74	M	170 days	Acute	Recovery	Good
34	76	F	175 days	Acute	Recovery	Good
35	78	M	180 days	Acute	Recovery	Good
36	80	F	185 days	Acute	Recovery	Good
37	82	M	190 days	Acute	Recovery	Good
38	84	F	195 days	Acute	Recovery	Good
39	86	M	200 days	Acute	Recovery	Good
40	88	F	205 days	Acute	Recovery	Good
41	90	M	210 days	Acute	Recovery	Good
42	92	F	215 days	Acute	Recovery	Good
43	94	M	220 days	Acute	Recovery	Good
44	96	F	225 days	Acute	Recovery	Good
45	98	M	230 days	Acute	Recovery	Good
46	100	F	235 days	Acute	Recovery	Good
47	102	M	240 days	Acute	Recovery	Good
48	104	F	245 days	Acute	Recovery	Good
49	106	M	250 days	Acute	Recovery	Good
50	108	F	255 days	Acute	Recovery	Good
51	110	M	260 days	Acute	Recovery	Good
52	112	F	265 days	Acute	Recovery	Good
53	114	M	270 days	Acute	Recovery	Good
54	116	F	275 days	Acute	Recovery	Good
55	118	M	280 days	Acute	Recovery	Good
56	120	F	285 days	Acute	Recovery	Good
57	122	M	290 days	Acute	Recovery	Good
58	124	F	295 days	Acute	Recovery	Good
59	126	M	300 days	Acute	Recovery	Good
60	128	F	305 days	Acute	Recovery	Good
61	130	M	310 days	Acute	Recovery	Good
62	132	F	315 days	Acute	Recovery	Good
63	134	M	320 days	Acute	Recovery	Good
64	136	F	325 days	Acute	Recovery	Good
65	138	M	330 days	Acute	Recovery	Good

CONTACT IF FOUND:

04/26/00



04-27-00

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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No. P04199USO
 First Inventor or Application Identifier Boesen, Peter V., M.D.
 Title POINT OF SERVICE BILLING AND RECORDS SYSTEM
 Express Mail Label No. EL327119497US

APPLICATION ELEMENTS

See MPEP chapter 800 concerning utility patent application contents.

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)
 (Submit an original and a duplicate for fee processing)
2. ☒ Specification [Total Pages 39]
 (preferred arrangement set forth below)
 - Descriptive title of the Invention
 - Cross References to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to Microfiche Appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
3. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 21]
4. Oath or Declaration [Total Pages 2]
 a. ☒ Newly executed (original or copy)
 b. ☐ Copy from a prior application (37 C.F.R. § 1.63(d))
 (for continuation/divisional with Box 16 completed)
 i. ☐ DELETION OF INVENTOR(S)
 Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).

NOTE FOR ITEMS 1 & 13: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.37), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.38).

ADDRESS TO: Assistant Commissioner for Patents
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5. ☐ Microfiche Computer Program (Appendix)
 6. Nucleotide and/or Amino Acid Sequence Submission
 (if applicable, all necessary)
 a. ☐ Computer Readable Copy
 b. ☐ Paper Copy (identical to computer copy)
 c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

7. ☐ Assignment Papers (cover sheet & document(s))
 8. ☐ 37 C.F.R. §3.73(b) Statement of Power of Attorney
 (when there is an assignee)
 9. ☐ English Translation Document (if applicable)
 10. ☐ Information Disclosure Statement (IDS)/PTO-1449
☐ Copies of IDS Citations
 11. ☐ Preliminary Amendment
 12. ☒ Return Receipt Postcard (MPEP 503)
 (Should be specifically itemized)
 13. ☒ Small Entity Statement
☐ Statement filed in prior application, Status still proper and desired
 (PTO/SB/05-12)
 14. ☐ Certified Copy of Priority Document(s)
 (if foreign priority is claimed)
 15. ☐ Other: Certificate of Mailing

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16. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No: _____

Prior application information: Examiner: _____ Group / Art Unit: _____

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

17. CORRESPONDENCE ADDRESS

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Applicant or Patentee: Boesen, Peter V., M.D.

Serial No. or Patent No: _____

Filed or Issued: April 26, 2000

For: POINT OF SERVICE BILLING AND RECORDS SYSTEM

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY
STATUS (37 CFR 1.9(f) AND 1.27(b)) - INDEPENDENT INVENTOR**

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.97(c) for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention described in: POINT OF SERVICE BILLING AND RECORDS SYSTEM

☒ [x] the specification filed herewith
☐ [] application Serial No. _____, filed _____
☐ [] Patent No. _____, issued _____

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

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*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27).

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I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of payment, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

PETER V. BOESEN, M.D.
NAME OF INVENTOR _____ NAME OF INVENTOR _____ NAME OF INVENTOR _____

Signature of Inventor _____ Signature of Inventor _____ Signature of Inventor _____

4-25-2000
Date _____ Date _____ Date _____

CERTIFICATE OF EXPRESS MAILING

I hereby certify that this document has been deposited with the U.S. Postal Service via "Post Office to Addressee" Express Mail service in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C., 20231, Box: PATENT APPLICATIONS , prior to 5:00 p.m. on the date shown below.

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APPLICANT: BOESEN, PETER V., M.D.

Attorney Docket No. P04199US0

FILED: April 26, 2000

TITLE: POINT OF SERVICE BILLING AND RECORDS
SYSTEM

Check in the amount of \$510

Certificate of Express Mailing

Fee Transmittal Form

Utility Patent Application Transmittal

Patent application

Declaration and Power of Attorney for Sole Inventor

Drawings

Verified Statement (Declaration) Claiming Small Entity
Status - Independent Inventor)

INVENTOR: Boesen, Peter V.

TITLE: POINT OF SERVICE BILLING AND RECORDS SYSTEM

BACKGROUND OF THE INVENTION

Field Of The Invention

The present invention relates generally to a billing and records system. More particularly, though not exclusively, the present invention relates to a code-driven computerized system for health care billing that places the responsibility for billing on the health care provider at the point of service. The present invention includes variations for other service industries in which it is desirable to place primary responsibility for billing and records keeping on the service provider. Other industries include, but are not limited to the fields of law, accounting, dentistry, architecture, and any other service-type industry where clients demand service providers be accountable for their time and services.

Problems In The Art

In 1966, the American Medical Association developed a system it calls Current Procedural Terminology (CPT). The CPT system is used by doctors and other health care providers to ensure uniformity in the description of services performed through the use of a common set of codes and descriptors. Unfortunately, the CPT is updated every year and in the year 2000 is expected to utilize 7,755 codes and descriptors. Such constant updating of so many codes requires care providers to spend countless hours ensuring the proper codes for services provided are being utilized correctly. With the passage of the Medicare Catastrophic Coverage Act of 1988, it became a mandatory requirement to use diagnostic coding of the International Classification of Diseases, 9th Revision, Clinical

Modification, (ICD-9CM) published by the Practice Management Information Corporation with a new revision available approximately September 15th of each year. Proper coding is the essential component of billing systems in order to satisfy the needs of clients relative to insurance companies, health maintenance organizations, and federal government programs such as Medicare and Medicaid.

Currently, there are multiple medical billing systems in place in which a care provider, such as a doctor, nurse, or allied health care provider, must manually enter coded patient care data on paper sheets prior to placement into a computer system. A billing clerk or other non-care providing personnel is then required to convert codes into a patient specific bill. This procedure allows for too many errors and places the ultimate responsibility for proper billing of clients on clerks and other personnel instead of upon the provider of services. As the health care provider is legally responsible for their submitted codes, it is desirable to facilitate the proper coding and billing for the person performing the services, i.e. the care provider.

Prior art systems which have attempted to correct this situation have allowed care providers to input patient specific coding in various ways. One prior art method of properly coding patient services was to use a preprinted super bill, such as the DocuScan®. A super bill, as commonly known in the art, allows the care provider to simply select the appropriate codes for the services performed via a Scantron® type sheet. However, due to the great number of codes, the super bill only contains pre-selected codes. Any additional or supplemental codes must be entered and selected manually by the care provider or an assistant and manually transferred into the billing system.

Further, the super bill requires the care provider to take time filling in circular indicators and finding exactly what codes should be marked for the services performed. Once completed by the care provider, the super bill is then submitted to other personnel and a patient specific bill is generated.

Still other prior art systems allow doctors to use a remote terminal and batch in, or download from a main terminal, all of the patient records for patients to be seen during the day. Upon download, the care provider can then input which services were performed for the patients on the remote terminal. At the end of the day, the care provider must then batch out, or upload to the main terminal, all the patient records in one action. Upon receiving the patient records, including the services performed, the main terminal can then be used to generate individual patient bills. This prior art system does not allow for the real-time generation of an individual bill or correction of erroneously selected codes prior to the patient's departure from the care provider's office. A further problem with such a prior art systems has been the inability to edit a patient's data once that data has been entered and before the data is transmitted or to input a new patient into the system at the point of care via the remote computer.

Still further yet, such systems do not allow the care provider to easily customize the diagnosis and procedure code screens with those codes most frequently used in the care provider's particular practice or field of specialty; such customization would require additional programming with great cost in terms of time and money. Nor do the prior art systems permit the care provider to research on-line for a particular code.

As on-line, or Internet based health-care information is becoming more and more prevalent, and more and more patients are on-line, it is desirable to have a system which is capable of having an on-line presence. Currently, WebMD.com provides information on physicians, diseases, and other medically related fields. However, the site does not allow patients to review their records or billing on-line. Further, the site does not allow care providers to provide such information.

Finally, remote computer systems are currently limited to laptop or desktop units which are then hardwired into the walls at the point of care and thereby wired to the main terminal. This prevents the care provider from entering data from any location other than where the computer has been placed. It is therefore desirable to provide a wireless, lightweight remote terminal system which allows the care provider to freely roam about and enter data anywhere at the point of care. It is further desirable to be able to access the host system even when out of the care provider's home office. In short, these prior art systems lack the functions and flexibility to be of significant assistance to the care provider. It is therefore desirable to have a system which overcomes the deficiencies found in the prior art, solving the aforementioned problems.

There is therefore a need to have a computer system that places responsibility for individual patient or client information, services provided, and billing records with the service provider at the point of service and allows the service provider to provide the patient or client with a bill upon the patient's or client's departure. In a medical application, there is a need to have a code driven computer system which accomplishes the above.

Features Of The Invention

A general feature of the present invention is the provision of a billing and records system which overcomes the problems found in the prior art.

A further feature of the present invention is the provision of a billing and records system which is code driven.

Another feature of the present invention is the provision of a computer billing and records system which places responsibility for billing and record keeping on the service provider.

A further feature of the present invention is the provision of a wireless computer billing and records system.

A still further feature of the present invention is the provision of a billing and records computer system that allows the service provider to input data at the point of service.

A yet further feature of the present invention is the provision of a billing and records computer system that allows the service provider to input data through an integral on-screen keyboard, dedicated to the individual screens as necessary and useful.

Another feature of the present invention is the provision of a billing and records computer system which allows a service provider to generate a patient's or client's bill prior to the patient's or client's departure.

A still further feature of the present invention is the provision of a billing and records computer system that allows a service provider to download specified patient or client data to and from a back-end computer.

An additional feature of the present invention is the provision of selected lateral communication from one front-end system to another distinct front-end system.

An still further feature of the present invention is the provision of lateral communication from one terminal to another via a wireless linkage.

An additional feature of the present invention is the provision of lateral communication from one terminal to another via a hard wire linkage.

Another feature of the present invention is the provision of a computer billing and records system that uses a graphical user interface to interact with the service provider to provide a means for accessing patient or client record and billing information at the point of service.

An additional feature of the present invention is the provision of a billing and records computer system having time based or service based code screens which may be easily customized by the service provider.

A still further feature of the present invention is the provision of a billing and records computer system having diagnosis and procedure code screens easily customized by the service provider.

A yet further feature of the present invention is the provision of a billing and records computer system that permits a service provider to search on-line, by code number or code description, to identify and select a particular code.

A still further feature of the present invention is the provision of a billing and records computer system which provides access to service providers and patients or clients via the Internet.

These, as well as other features and advantages of the present invention, will become apparent from the following specification and claims.

SUMMARY OF THE INVENTION

The present invention generally comprises a computer billing and records system. In a preferred medical embodiment, the present invention includes a software application that is CPT and ICD-9CM code-driven and places responsibility for patient billing and record keeping on the care provider at the point of care. A software application residing on a remote computer is included which provides a graphical user interface for the care provider. The software application allows the care provider to input and edit individual patient data from the remote computer. Further, the software application allows the care provider to select the appropriate coding and allows the care provider to update the codes appropriately.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a pictorial representation of the network connectivity set-up of the preferred embodiment of the present invention.

Figures 2A and 2B (collectively referred to as "Figure 2") are a flow chart of the back-end of the present invention.

Figures 3A, 3B, 3C, and 3D (collectively referred to as "Figure 3") are a flow chart of the front-end of the present invention.

Figure 4 is a pictorial representation of the Splash screen.

Figure 5 is a pictorial representation of the Log On screen.

Figure 6 is a pictorial representation of the Edit Practice Data screen.

Figure 7 is a pictorial representation of the Main Menu screen.

Figure 8 is a pictorial representation of the Patient Selection screen.

Figure 9 is a pictorial representation of the Facility Selection screen.

Figure 10 is a pictorial representation of the Add A Patient screen.

Figure 11 is a pictorial representation of the Edit A Patient screen.

Figure 12 is a pictorial representation of the Patient Procedure and Diagnosis screen.

Figure 13 is a pictorial representation of the Diagnosis Codes screen.

Figure 14 is a pictorial representation of the Procedure Search Option screen.

Figure 15 is a pictorial representation of the Diagnosis Codes Search screen.

Figure 16 is a pictorial representation of the Ailment screen.

Figure 17 is a pictorial representation of the Referring Provider List screen.

Figure 18 is a pictorial representation of the Note screen.

Figure 19 is a pictorial representation of the Modifier Option screen.

Figure 20 is a pictorial representation of the Units Option screen.

Figure 21 is a pictorial representation of the Summary screen.

Figure 22 is a pictorial representation of the Import Data screen.

Figure 23 is a pictorial representation of the Password Screen.

Figure 24 is a pictorial representation of the Tools and Utilities screen.

Figure 25 is a pictorial representation of the Full Tools and Utilities screen.

Figure 26 is a pictorial representation of the View Practice Data screen.

Figure 27 is a pictorial representation of the Color Preference screen.

Figure 28 is a pictorial representation of the Setup screen.

Figure 29 is a pictorial representation of the Procedure Code Setup screen.

Figure 30 is a pictorial representation of the Diagnosis Code Setup screen.

Figure 31 is a pictorial representation of the Abort Program screen.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

The present invention will be described as it applies to its preferred medical embodiment. It is not intended that the present invention be limited to the described embodiment. It is intended that the invention cover all modifications and alternatives which may be included within the spirit and scope of the invention.

As shown in Figure 1, the billing and records system 10 of the present invention is a front-end - back-end system, with an open standards-based software architecture as is commonly known in the art. A new trend in such architecture is "multi-tiered solutions." A tier is simply a layer, usually consisting of a particular piece of software. For instance, in a typical front-end/back-end relationship, the front-end is one tier and the back-end is

another tier. The front-end performs user interface services such as entering, editing, validating, and displaying information on the front-end computer 14 as shown in Figure 1. The user interface preferred for use by the care provider is a graphical user interface, running for example in Microsoft Windows 98® via Microsoft Visual Basic 6.0, that interacts with the care provider as the front-end.

The front-end computer 14 is preferably a pen based computer such as the Fujitsu Model Point 1600, including a radio frequency based Proxim connection system. The use of a wireless, pen based computer allows a care provider to enter all necessary data from the point of care with minimal equipment interference. The back-end computer 12 is preferably a Hewlett Packard computer running a UNIX operating system, though any operating system compatible with the front-end computer 14 is acceptable. Both the front-end computer 14 and the back-end computer 12 are preferably Internet capable. Internet capable means each computer is connected to and may be accessed from the Internet 16. Connection to the Internet 16 is accomplished using Transfer Control Protocol/Internet Protocol (TCP/IP), and an internet service provider such as U.S. West, Iowa Network Services, or any other provider.

The front-end computer 14 is linked to the back-end computer 12 through either the Internet 16 or a direct linkage. This linkage may be either a wired or wireless linkage, such as the Proxim connection system mentioned above. Further, any other computer 18 may be connected to or accessed from either the front-end computer 14 or the back-end computer 12 through the Internet 16.

On a web page, not shown, information about healthcare related issues is presented along with an access area in

which patients would be able to enter an access code and user identification so as to access and view their records and billing information. The care provider would have a separate access code and user identification which would allow the care provider to provide, edit, review, and download patient records and billing information. Should any questions arise, patients are able to click on the e-mail address provided to ask a care provider to address their concerns. The web page is preferably created in hyper text markup language (HTML).

To provide patient records and billing information over the Internet 16 requires a high level of security in order to ensure no access is given to non-patients. This form of Internet security can be provided for by implementing the measures as stated in U.S. Patent No. 5,898,830 to Wesinger, Jr., et al., hereby incorporated by reference. Of course, the front - end computer 14 may also be internet capable.

As shown in Figure 2, a linking computer program 300 is located on the back-end computer 12. The linking computer program 300 uses a patient database to create a patient work file on the back-end computer 12. The patient work file is a text file which contains a list of all patients, and their necessary accompanying records, to be seen for a specific day such as the current day.

The linking computer program 300 initially presents the care provider, system administrator, or user, with a main menu 302. The main menu 302 screen, presents the care provider with several options, including a port for program option 304, a summary report option 306, a detail report option 308, a enter no shows/cancels option 310, a daily archive maintenance option 312, a control file maintenance option 314, a create modifier code file option 316, a

create service code file option 318, a create diagnosis code file option 320, a create referring provider file option 322, a create facility code file option 324, a create patient encounters option 328 and a create program files option 326.

The control file maintenance option 314 governs information regarding the front-end program described below and its interaction with the back-end computer 12. The control file maintenance option 314 segregates the location of the front-end program data files, in relationship to the back-end system.

A reference database may be maintained on the back-end computer 12 or any other system 18 to which the back-end computer 12 may connect either through hard wire linkage or wireless linkage. The reference database may be accessed from or over the Internet 16. The reference data base contains all procedure codes, modifier codes and diagnosis codes needed, as well as a complete patient/client list. The present invention uses and obtains the latest electronic versions of the American Medical Associations CPT as well as International Classification of Disease 9th Edition (ICD-9CM) terminology. These codes may be downloaded from the Internet 16 or from disks. Additionally, if necessary, these codes may be input by a system administrator.

Using the reference database, the create modifier code files option 316 creates the modifier code file for export to the front-end computer 14 containing all modifier codes residing on the back-end system. Again using the reference database, the create service code file option 318 creates a file for export to the front-end computer 14 containing all procedure or service codes, residing on the back-end system. Using the reference database again, the create

diagnosis code file option 320 creates a file for export to the front-end computer 14 containing new or updated diagnosis codes.

The create referring provider file option 322 creates a file for export to the front-end computer 14 containing all referring provider information and codes, residing on the back-end system. The create facility code file 324 creates a file for export to the front-end computer 14 containing all current facility information residing on the back-end system.

The create program code file option 326 creates a file for export to the front-end computer 14 containing all of the current information listed above for transmission in batch mode. The use of create program code file option 326 alleviates the need to run each option separately.

The create patient encounters option 328 creates a patient work file which contains all of the patients with their corresponding appointment times for the current day. The patient work file created by the patient encounters option incorporates the current information compiled by the create program code file option 326 or any of the separately run options. The current information is incorporated with each patient's information such that should the care provider choose, the care provider may select only one patient at a time and still be presented with all of the current information at the time of the patient's appointment.

The daily archive maintenance option 312 moves the contents of the patient work file to a file entitled using the work file name as the prefix and the current day's date as the suffix. The daily archive maintenance option 312 clears out and stores the previous day's work file.

The summary report option 306 provides the care provider with a summary report of general data regarding the procedure charges which may be viewed and/or printed. The detail report option 306 provides the care provider with a printed detailed report regarding the procedure charges with related diagnosis codes for the day which may be viewed and printed.

The enter no shows/cancels option 310 updates the patient work file for those patients that have not shown up for their appointments or have canceled their appointments. The updated work file is then transmitted to the front-end computer 14 via the program link 106 described below, or transmitted from the front-end system to the back-end system via the program link.

The port for program option 304 opens the program link 106 described below. All files, including either the batch file created by the create program code file option 326 or the individual files by the create options above, the updated or current patient work file are transmitted to the front-end computer 14 via the program link 106 as described below.

Further, the back-end computer 12 contains a billing program capable of receiving individual patient data and forming a Health Care Financing Administration (HCFA) Form 1500 statement for billing based on services performed and treatments given as shown in the patient work file. Using the appropriate information from the patient work file including the codes representing the services performed, the billing program determines the proper amount of charges due for services rendered on each particular visit for each particular patient. Additionally, the billing program may be adapted to transfer patient data from the patient work

file to electronic versions of other insurance and governmental forms.

The core of the billing and records keeping system 10 of the present invention is a computer program which makes it possible to place all the responsibility for billing and record keeping on the care provider while ensuring the care provider has the latest up-to-date codes available from the back-end computer 12 as described above.

The graphical user interface and object-logic tiers of the present invention are programmed for a front-end computer, preferably the Fujitsu Model 1600 running on a Microsoft Windows 98® platform. The preferred programming languages are Microsoft Visual Basic and C+.

Figure 3 shows a flowchart of a computer program which resides on the front-end computer 14 of Figure 1. The computer program is capable of communicating with the back-end computer 12, and is therefore designed for use over networks or the Internet. Communication preferably takes place over a Proxim radio frequency based system, but may also use hard wired connections, such as telephone lines or Ethernet lines, or a radio frequency modem and accompanying antenna and system. The back-end computer 12 may be a single computer or other system, including existing hospital information support systems, or remote Internet access servers.

As shown in Figure 3, upon start up, a care provider is presented with a splash screen 20, shown in Figure 4, which welcomes the care provider to the system 10 and gives general information regarding the software licensing and title. After this brief welcome, the logon screen 22, shown in Figure 5, appears. The logon screen 22 requires the care provider to enter a proper user identification 24 and password 26 in the appropriate text fields shown in

Figure 5, and select the OK option 28 push button. At initial startup, a general user identification 24 and password 26 may be used. As is further shown in Figure 5, an on-screen keyboard 200 may be used to enter in the identification 24 and password 26. The on-screen keyboard is integral to the screen and remains screen specific. Additionally, software capable of recognizing handwriting may be installed onto the front - end computer 14 allowing the care provider to simply write the identification 24 and password 26 into the appropriate text fields via pen input.

The identification 24 and password 26 may be changed to a care provider specified identification 24 and password 26 through the Edit Practice Data Screen of the Tools and Utilities Sub Menu, shown in Figure 6, as discussed further below. This ensures patient data will only be accessed by authorized personnel, further ensuring patient record privacy. Should the care provider fail to enter a proper identification 24 and password 26 or choose to cancel the logon operation by selecting the cancel option 30, such care provider will be directed to the exit 32 of the computer program.

Once access has been obtained, the main menu 34 of the computer program is displayed as shown in Figure 7. The main menu 34 of the computer program consists of a screen which presents the care provider with several options. From the main menu 34, the care provider may choose an option, by simply pressing the pen of the pen based computer on the appropriate push button on the screen representing that option. The options available on the main menu 34 include an option for opening today's clinic database 36, an option for evaluating patient summaries 38, an option to import data 40 from the back-end computer 12,

a tools and utilities option 42, an option to evaluate the program source data 44, and a log off option 46.

As shown in Figure 8, upon pressing the push button for the option for opening today's clinic database 36, the patient selection screen 48 is displayed, showing a list of the current day's patients compiled from the transmitted patient work file discussed above, with the first patient highlighted in the patient list box 49 along with the current place of service for that patient. Along with the name of the patient, the patient's date of birth, provider, encounter number, the date of current encounter, the time for the appointment, the back system account number, the action status and the result of actions taken status is displayed.

The patient selection screen 48 allows the care provider to select which patient is being cared for. Selection is accomplished by pushing on the patient name with the pen and thereby highlighting the patient. Once the correct patient has been highlighted, the OK option 50 push button is selected. If the care provider no longer wishes to select any patient, the care provider may return to the main menu 34 by selecting the cancel option 52 push button.

The patient selection screen 48 further allows the care provider to edit the location at which services are performed by selecting the change place of service option 62 push button. Selecting the change place of service option 62 directs the care provider to the Facility Selection screen 78, as shown in Figure 9. The Facility Selection screen 78 displays a place of service box 80 and a facility list box 82. By highlighting the place of service and the facility of service, no facility selection need be made for the care provider's office, and then

selecting the OK option 84 push button, the care provider can change the place of service. Clicking the cancel option 88 push button will keep the current place of service information. A help option 90 push button can be selected and will display helpful information on the screen. Selection of the place of service allows the care provider to quickly indicate whether services are to be performed as an in-patient, out-patient, clinic or other service.

As shown, the select a patient screen of Figure 8 further allows the care provider to add, as shown in Figure 10, or edit, as shown in Figure 11, individual patient data. Therefore, the responsibility for patient record keeping falls on the care provider rather than a non-care providing person who must interpret the care provider's notes and/or dictation to arrive at the data in question.

The care provider may add patient profiles for the current day's processing. From the patient selection screen, shown in Figure 8, the care provider can select the add a patient option 54. This directs the care provider to the add a patient option 54 screen, as shown in Figure 10.

The add a patient option 54 screen includes several text boxes which allow the care provider to input data concerning the patient, including the account number, the appointment time, the patient's last name, the patient's first name, the patient's middle initial, the patient's date of birth, and the care provider's provider number. Other information can be added by adding additional text boxes and customizing the add a patient option 54 screen to include desired information relevant to the type of services provided.

Here again the care provider may use the on-screen keyboard 200 or the pen input to add an individual patient

profile. Selecting the OK option 94 push button enters the patient information. Upon selecting the OK option 94, the patient profile is immediately available for use with the rest of the billing and records system 10. Selecting the cancel option 96 push button will return the care provider to the select a patient screen 48. Additionally, a help option 98 push button is provided to provide helpful information to the care provider upon request.

Similar to the add a patient option 54 is the edit a patient option 56. Unlike the add a patient option 54, the edit a patient option 56 screen, shown in Figure 11, presents the care provider with text boxes already completed with patient information of the highlighted patient to be edited. This patient information may be edited through the use of either the pen or the on-screen keyboard 200. The OK option 100, the cancel option 102, and the help option 104 push buttons work similar to those in the add a patient option 54.

The patient selection screen 48 also includes a send/receive option 58. After a patient has been cared for, the patient data is ported to the back system through the program link, with a result code shown in Fig. 8 indicating successful porting to the back-end computer or an error message. The services performed action code appears on the select a patient screen 48 as an asterisk in the action column of the patient list before sending the data to the back-end system. Once the updated patient data has been sent, an "S" is shown in the Action Section. Once data has been received by the back-end system 12, the back-end system 12 transmits data to the front-end system 14 indicating the latest data has been received, indicating the result of successful transmission of code data with an

"x" in the result column and, thereby changing the action code to an "S" as shown in Figure 8.

The send/receive option 58 screen uses the program link 106 to send and receive patient or coding data between a front-end computer 14 and a back-end computer 12. Simultaneously, all patient data with an asterisk action code is transmitted. This allows for single batch or multiple batch transfer of patient data capabilities. By selecting the receive data option 164, data for new patients to be seen, cancellations, no shows, updates, or similar information is transmitted from the back-end computer 12 to the front-end computer 14 with each activation of the Send/Receive link. This capability to send and receive individual patient data allows the care provider to properly bill a patient upon the patient's departure from the care provider's office and is responsive to the burdens placed upon the typical operations of a clinic, namely add-on patients, such as "walk-ins" or "work-ins."

All transmission between the front-end computer 14 and the back-end computer 12 or vice-versa occur via the program link 106 as described below. Such importing/exporting of data may take place immediately, updating the care provider while viewing the patient selection screen 32.

The patient selection screen 48 further allows the care provider to ask for help by selecting the help option 60 push button. Help is provided in all of its applications in the present invention internally, via the front-end computer 14, or the Internet 16 to which the front-end computer 14 are connected. Help is routed through the program link 106 if necessary.

Preferably, the front-end computer 14 and back-end computer 12 are linked wirelessly via the program link 106. The program link 106 is preferably a wireless linkage using a radio frequency (RF) local area network (LAN) such as Proxim or BreezeCom. Other forms of communication between the front-end computer 14 and the back-end computer 12 may be used such as cellular, time modulated ultra wide band radio frequency, infrared, or any type of conventional hard wiring which is commonly known in the art.

Once a patient has been selected from the patient selection screen 48, the care provider is directed towards the Patient Procedure and Diagnosis Codes 104 screen as shown in Figure 12. From here, the care provider can select the proper procedure and diagnosis codes from the American Medical Associations CPT. The patient procedures codes and a description of the procedure appear at the bottom of the screen shown in Figure 12. Upon selecting the appropriate procedure code, the care provider is directed to the diagnosis screen 106 as shown in Figure 13.

If the proper procedure code is not shown, the care provider may select the procedure search option 132. Clicking on the procedure search option 132 push button directs the care provider to the procedure search option 132 screen as shown in Figure 14. Here the care provider can search by number or by description for the procedures not previously found using either the pen or the on-screen keyboard 200. Selecting the OK option 134, or the cancel option 136 returns the care provider back to the patient procedures and diagnosis codes screen 104 with or without the selected codes respectively. The care provider may also select a help option 138 which will present the care provider with helpful information.

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In the diagnosis screen 106, the care provider can select the proper diagnosis code(s). Up to four diagnosis codes can be selected, however, if more are required by the Health Care Financing Administration (HCFA) in the future, this number can easily be expanded. The selected diagnosis code appears in the upper left corner of the diagnosis screen 106 as shown in Figure 13 and the order of codes may be changed by highlighting the desired code and then moving the highlighted code either up or down, to the top or to the bottom by selecting the appropriate push button. Additionally, either the highlighted code or all of the codes selected may be deleted by pushing the appropriate push button. When the care provider is done selecting diagnosis codes, the OK option 108 push button is selected directing the care provider back to the Patient Procedure and Diagnosis Codes Screen 104. Additionally, if the care provider does not wish to select a diagnosis code at this time, the care provider may select the cancel option 110 push button, thereby returning the care provider to the Patient Procedure and Diagnosis Codes Screen 104. Upon pressing the cancel option push button, the care provider will be prompted to determine whether the intention to leave the screen without updating is correct. Only upon affirmation will the care provider be returned to the patient procedure and diagnosis codes screen 104, canceling the diagnosis code(s) and specific related procedure code.

If the care provider does not see the proper diagnosis present, the care provider may select the search option 112 from the diagnosis screen 106. Selecting the search option 112 push button directs the care provider to the diagnosis search screen 116 as shown in Figure 15. Here, the care provider may scan the vast amounts of data representing different possible diagnoses. The care provider may search

by number or by description for the diagnosis codes desired. The care provider then selects the proper code using either the pen or the on-screen keyboard 200. Selecting the OK option push button returns the care provider to the patient procedure and diagnosis screen 104 with the desired input. Selecting the cancel option push button discards all input and simply returns the care provider to the procedure and diagnosis screen 104. A help push button is also provided should the care provider need assistance.

From the procedure and diagnosis screen 104, the care provider may select the ailment option. This directs the care provider to the ailment screen 118 as shown in Figure 16. Here the ailment may be documented through the use of various text boxes labeled to show all the required fields for insurance processing including when symptoms first appeared, when the first consultation was sought, etc. The dates will default to the current day's date unless changed.

Further, the doctor who referred the patient with the respective ailment is shown including the doctor's name and referring provider number. These may be edited by using the change referring provider option 120. Upon selecting the change referring provider option 120 push button, the care provider is directed to the referring provider list screen, as shown in Figure 17. This allows the care provider to select the referring provider from the list or type in the first letter of the name to narrow the search using the on-screen keyboard 200. Additionally, if the referring provider information is to be left blank, the care provider can delete any name listed in the text boxes by selecting the delete referring provider option 122 push button, which simply clears all text boxes relating to the

referring provider. Selecting the OK option sends the care provider back to the patient procedures and diagnosis codes screen 104. A cancel option push button returns the care provider to the patient selection screen 48. Additionally, a help option push button provides help if the care provider needs assistance.

The patient procedures and diagnosis codes screen 104 also includes a note option 124. By selecting this note option 124 push button, the care provider is directed to a note option 124 screen as shown in Figure 18. Here the care provider may use the built in on-screen keyboard 200 or the pen via handwriting recognition software to enter notes for this particular patient into the text box. Again, the on screen keyboard 200 is always present on any screen where it is necessary for the care provider to enter or edit. After entering a note into the text box, the care provider may select the OK option 126, the cancel option 128, or the help option 130. Selecting either the OK option 126 or the cancel option 128 will return the care provider to the patient procedures and diagnosis codes screen 104. Selecting the help option 130 will offer help to the care provider.

Also on the patient procedures and diagnosis codes screen 104, is a summary area 140. The summary area 140 contains all procedures selected along with the modifiers, units, and diagnosis codes selected which correspond to each procedure. Selected procedures and their accompanying information may be deleted by using the delete option 150 push button. A Help button (not shown) is also provided.

Modifiers, adding further clarification to the procedures performed, may be added by clicking on the modifier option 142 push button. Upon clicking on the modifier option 142 push button, the care provider is

directed to the modifier option 142 screen, as shown in Figure 19. On the modifier option 142 screen, the care provider is presented with a list of possible modifiers relevant to the selected procedure. From this list, the care provider selects any and all necessary modifiers (up to three, as allowed by the Health Care Financing Administration). The care provider may move the selected modifier up, down, to the top or bottom using the corresponding option push buttons. Additionally, the care provider may delete either the selected modifier or all of the modifiers using the delete push button or the delete all push button respectively. Upon conclusion, the care provider clicks on the OK option push button or the cancel option push button and returns to the patient procedures and diagnosis codes screen 104 with or without the desired modifier(s) selected respectively. Further, a help option is available to the care provider in the need of assistance.

By selecting the units option 144 and clicking on the units option 144 push button, the care provider is directed to the units option 144 screen as shown in Figure 20. On the units option 144 screen, the care provider may enter the number of units desired in the corresponding text box. The default number of units is one. Further, the care provider may enter other information, such as the start time, end time, actual minutes, supervisor reduction percentage, etc. in corresponding text boxes through either the pen or the on-screen keyboard 200. Upon conclusion, the care provider clicks on the OK option push button or the cancel option push button and returns to the patient procedures and diagnosis codes screen 104 with or without the desired units selected respectively. Further, a help

option is available to the care provider in the need of assistance.

Finally, the summary area 140 also includes a send beam option 146 and an accept beam option 148. The send beam option will transmit only the data in the summary area 140 to only another computer which is waiting for the data. Any other computer capable of accepting data is capable of receiving data from the send beam option 146 and must be "Accept beam" mode, waiting for data transmission. As only the data in the summary area 140, which includes no patient names nor identifying information will be transmitted, total patient privacy is ensured. Only another computer which is specifically waiting for data regarding a particular patient will be able to make use of the data. This situation occurs often between doctors who must rely on the work done just previously by another care provider. To comply with insurance and governmental regulations, doctors must include all coding for all prior procedures performed on a particular patient.

In order to be waiting for data from another computer, or if another computer is transmitting the data, the front-end computer 14 of the present invention, must click on the accept beam option 148. This allows the front-end computer 14 to receive data from another front-end computer using a non similar back-end link system. Should an error occur, an error message appears indicating the error.

Both the send beam option 146 and the accept beam option 148 use a wireless linkage, such as the Proxim RangeLAN2 system. Other wireless linkage are possible, such as an Infra red laser diode system, such as currently found in the art. Further, the linkage may be hardwired to transmit data between two corresponding ports on the front-end computers 14.

If the transmission is successful, an "OK" message will appear indicating to the care provider that data has been transmitted. At any point in the process, the care provider may wish to terminate transmission and may exit the beam data option. If the transmission encounters errors, an appropriate error message is noted. Upon exiting or encountering an error message, the care provider will be passed back to the summary area 140.

From the main menu screen 34, the care provider may also view today's patient summary 38. This directs the care provider to the patient summary 64 screen which may be printed, stored, or downloaded from the back-end computer 12. The patient summary 64 screen as shown in Figure 21, shows a list of all patients seen and processed for the current day. The list displays the account number, the patient name, the date of service, all codes that have been posted, the procedure code with modifiers and units, the first diagnosis code, the care provider number and the dollar amount of charges due per procedure performed.

From the main menu 34, a care provider can select the import data option 40. The care provider is directed to the import data screen 166 as shown in Figure 22. The import data screen 166 includes several check boxes allowing the care provider to decide which files to import. The care provider may import the patient files, the procedure code files, the diagnosis codes files, the modifiers files, the referring providers files, or the facility files, or all of the above. By pressing the pen or using a mouse, the care provider may select or check the appropriate boxes. Upon pressing the import option 168 push button and using the program link 106, the care provider can import all of the desired files for the day. Only the patient files corresponding to the patients the

[illegible][illegible]

Clicking on the view practice data option 68 push button directs the care provider to the view practice data option 68 screen, as shown in Figure 26. This presents the care provider with filled in text boxes allowing the care provider to see the practice name, address, city, state, serial number, license information, type of practice, provider number, password, identification, and view the selections made concerning various options such as repeatability of diagnosis on procedures, whether to show the start/end times and whether to use the supervisor reduction percentage. Once the care provider is done viewing the practice data, the care provider may return to the main menu by selecting the cancel option 176.

Clicking on the edit practice data option 70 push button directs the care provider to the edit practice data option 70 screen, as shown in Figure 6. This screen allows the care provider to change any of the information listed in the view practice data option 68 screen. After the appropriate information is entered via the keyboard 200 or the pen, the care provider selects the OK option 178. If the care provider does not want to keep any changes made, the care provider may select the cancel option 180 and return to the main menu 34.

Clicking on the color preferences option 72 directs the care provider to the color preferences option 72 screen, as shown in Figure 27. Here the care provider may alter the colors used on the screen displays to suit the individual care provider's preferences. The color preferences may be saved by selecting the save colors option 182, or any changes may be cancelled by selecting the cancel option 184. The care provider may return to their previously established colors by selecting the user defaults option 186 or return to the pre-programmed colors by selecting the program defaults 190. Here the aesthetics of the front-end computer 14 screen may be adjusted to fit the individual care provider's preferences, fully taking into account human abilities or inabilities to differentiate between colors - e.g. red and green in red/green colorblind users. A help option 192 is also provided should the care provider need assistance.

Again referring to Figure 24, clicking on the setup screens option 74 push button directs the user to the set up screens option 74 screen, as shown in Figure 28. Here the care provider may alter the setup of the procedure codes via the procedure code setup option 194 or the diagnosis code setup option 210.

Clicking on the procedure code setup option 194 push button directs the care provider to the procedure code screen builder screen as shown in Figure 29. Here, the care provider may search for codes by number or description, select the appropriate code, delete a current code, or add a new code. To import the current CPT/EM codes into the editing area, the care provider may click on the load CPTs option push button. After any and all modifications are done, the care provider can click on the save CPTs option push button. When all modifications are done the care provider may exit by clicking on the exit option 196 push button. This gives the care provider the ability to customize the procedure codes used most frequently for their individual practice. Additionally, help is available to the care provider via the help option 198.

The diagnosis code setup option 210 and screen, as shown in Figure 30, works exactly like the procedure code setup option 194, except, of course, with diagnosis codes.

Again referring to Figure 25, the care provider may exit the tools and utilities option 42 screen by selecting the exit option 76. This returns the care provider to the main menu 34.

Now referring to Figure 3 from the main menu 34, the care provider may select the about program option 44. Upon clicking on the about program option 54 push button, the about program option 54 screen is displayed as shown in Figure 31. The screen displays the author of the program, the author's address and phone number, as well as the current version of the program. Once the care provider is done viewing this information, the care provider may return to the main menu 34 by selecting the OK option 218.

Once the care provider is finished using the front-end system 10, the care provider may log off using the log off option 46 from the main menu 34 as shown in Figure 7. After logging off, the care provider exits the system 10 via exit 32.

The system 10 and program described above may be easily modified to work in other health care fields, such as dentistry and non-health care related fields such as accounting, law, architecture and others. Anyone in the multiple service industries could use the present invention for their billing and records system 10. For example, a law office, which bases its billing typically on a time standard, could easily use such a system 10. Instead of diagnosis codes, the law office would be able to use or codify commonly performed task categories, such as "telephone conversation," "briefing," "motion," "letter," "trial," etc. These categories could then have more specific sub categories. For instance, the category "motion" could have subcategories such as "summary judgment," "bifurcation," "compel," or as many others as should be desirable.

Much like the health care industry, more and more legal fees, such as court fees, administrative practice fees, etc. are constantly changing. Through the use of this billing/records system 10, a law office may have one person which can update all appropriate fees for the entire office. Simple modifications would be all that is required. Instead of patients, clients would be selected. Instead of referring physician, reference attorney or referring entity would be used. These and many other substitutions could be made to tailor the program to fit the needs of a law office. Similar modifications could be made to the program for use in an accounting office,

insurance company, brokerage firm, or any other member of the multiple service industries doing business.

A general description of the present invention as well as a preferred embodiment of the present invention has been set forth above. Those skilled in the art to which the present invention pertains will recognize and be able to practice additional variations in the methods and systems described which fall within the teachings of this invention. Accordingly, all such modifications and additions are deemed to be within the scope of the invention which is to be limited only by the claims appended hereto.

What is claimed is:

1.

A computer system comprising:

- a back-end computer;
- a client database on the back-end computer wherein client information is stored;
- a reference database on the back-end computer wherein codes are stored;
- a front-end computer;
- a linkage operatively connecting the back-end computer to the front-end computer;
- a computer program linking the front-end computer and the back-end computer such that the front-end computer has access to the databases stored on the back-end computer; and
- a computer program run on the front-end computer allowing a user to update the client database at any time.

2.

The computer system of claim 1 further comprising:

- a software program stored on the back-end computer wherein said software program generates a bill for the client based on the updated client database.

3.

The computer system of claim 2 wherein the bill for the client is based on the codes of the reference database as used by the computer program of the front-end computer.

4.

The computer system of claim 1 wherein the linkage is a hard-wired linkage.

5.

The computer system of claim 1 wherein the linkage is a wireless linkage.

6.

The computer system of claim 5 wherein the wireless linkage uses a radio frequency transmission.

7.

The computer system of claim 5 wherein the wireless linkage uses an infrared beam for transmission.

8.

The computer system of claim 1 wherein the back-end system is Internet capable.

9.

The computer system of claim 1 wherein the front-end system is Internet capable.

10.

The computer system of claim 1 wherein the front-end computer includes a digital keyboard.

11.

The computer system of claim 1 wherein the patient database can be created on the front-end computer.

12.

The computer system of claim 1 wherein the patient database can be created on the back-end computer.

13.

The computer system of claim 1 wherein the patient database includes fields for insurance information relevant to a patient.

14.

The computer system of claim 1 wherein the patient database can be edited by the user on the front-end computer.

15.

The computer system of claim 1 wherein the patient database can be edited by the user on the back-end computer.

16.

The computer system of claim 1 wherein the front-end computer is a pen-based computer.

17.

A method of billing an individual comprising:
selecting a code stored in a database held on a computer system where said code indicates a service performed by a user;
transferring the selected code for the individual to a billing program; and
generating a bill from the billing program to be given to the individual.

18.

The method of billing an individual of claim 17 wherein the computer system includes a back-end computer, a front-end computer and a linkage between the back-end computer and the front-end computer.

19.

The method of billing an individual of claim 18 wherein the linkage is a wireless linkage.

20.

The method of billing an individual of claim 19 wherein the wireless linkage uses a radio frequency transmission.

21.

The method of billing an individual of claim 19 wherein the wireless linkage uses an infra-red transmission.

22.

The method of billing an individual of claim 18 wherein the linkage is a hard-wire linkage.

23.

The method of billing an individual of claim 17 further comprising:
generating a client database on the computer system.

24.

The method of billing an individual of claim 18 further comprising:
generating a client database which may be edited by the user on the front-end computer.

25.

The method of billing an individual of claim 18 further comprising:
generating a client database which may be edited by the user on the back-end computer.

26.

The method of billing an individual of claim 24 wherein the client database is generated on the front-end computer.

27.

The method of billing an individual of claim 25 wherein the client database is generated on the back-end computer.

28.

The method of billing an individual of claim 18 wherein the front-end computer is a pen-based computer.

29.

The method of billing an individual of claim 28 wherein the front-end computer includes a digital keyboard.

30.

A computer program for billing comprising:
a reference database wherein procedural, modifier, and pricing codes are stored;

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- a client database wherein client specific information is stored;
- a set of computer-coded instructions for receiving information from the reference database;
- a set of computer-coded instructions allowing a user to select information from the reference database relevant to a service provided by the user for the client;
- a set of computer-coded instructions for inputting information selected from the reference database into the client database to update the client database; and
- a set of computer-coded instructions for billing the client for the service provided by the user as stored in the updated client database.

31.

The computer program for billing of claim 30 further comprising:

- a set of computer-coded instructions for providing the user with an integrated digital keyboard whereby the user can enter data into the client database.

32.

The computer program for billing of claim 30 further comprising:

- a set of computer-coded handwriting recognition instructions allowing the user to enter data into the client database using a pen-based computer.

33.

The computer program for billing of claim 30 further comprising:

- a set of computer-coded instructions allowing the user to transmit one or more updated client databases to another computer.

A method for tracking and recording patient treatment at the point of care comprising:

- selecting patients to be seen;
- creating a modifier file based on the patients to be seen;
- creating a service file based on the patients to be seen;
- creating a diagnosis file;
- creating a referring provider file based on the patients to be seen;
- creating a facility code file;
- combining all of the files into one transfer file; and
- processing the files through a computer program as directed by user inputs.

ABSTRACT OF THE DISCLOSURE

A billing and records system software application that places responsibility for billing and coding accuracy upon the provider of services and is used on a front-end computer which allows the provider to update, edit, and input data. The front-end computer is linked to a back-end computer. The back-end computer program stores the necessary databases for use on the front-end computer. The reference databases have all of the current coding required for the provider. The back-end computer also contains a linkage component and a billing program which uses data from the front-end computer to prepare a bill for the encounter.

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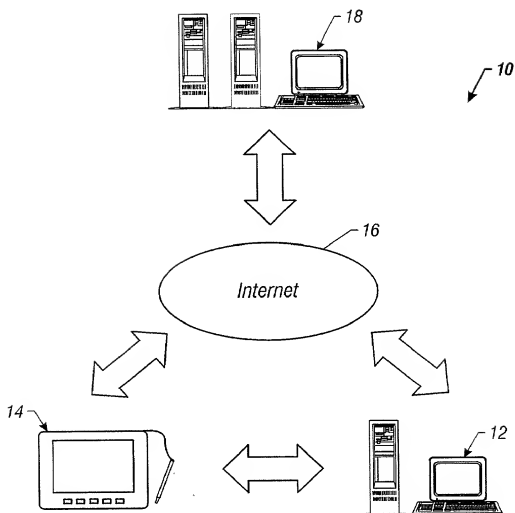


FIG. 1

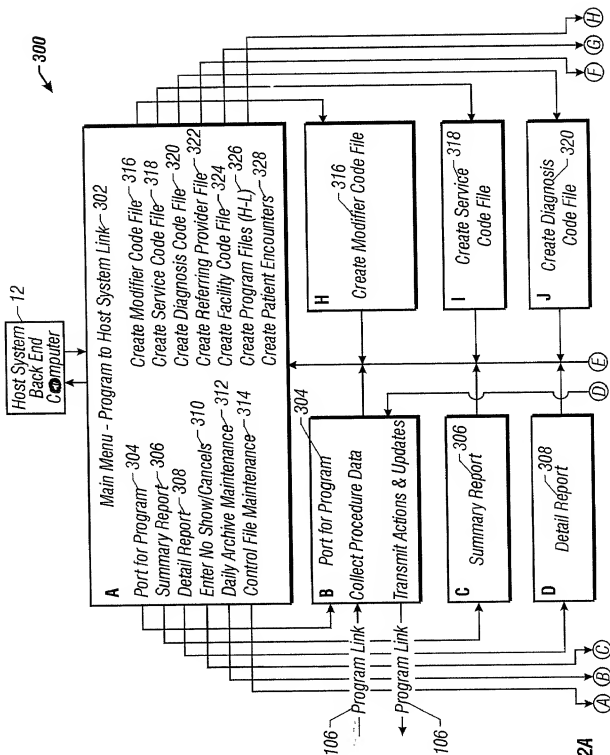


FIG. 2A

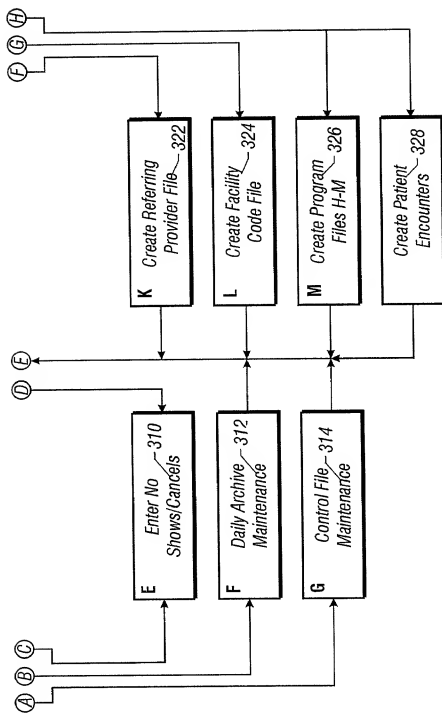


FIG. 2B

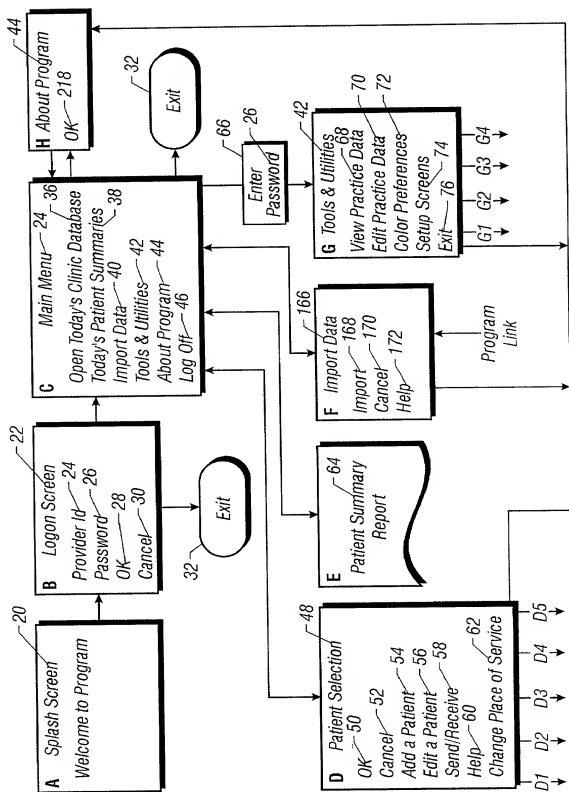


FIG. 3A

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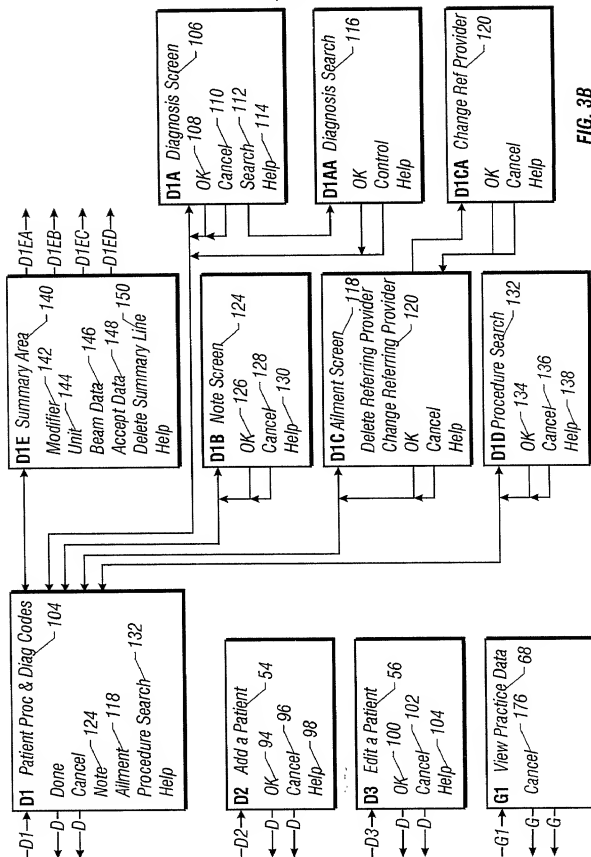


FIG. 3B

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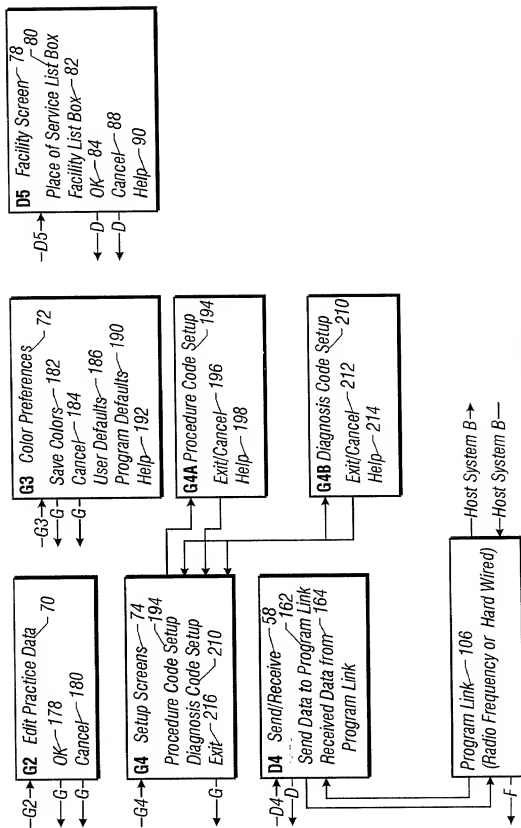
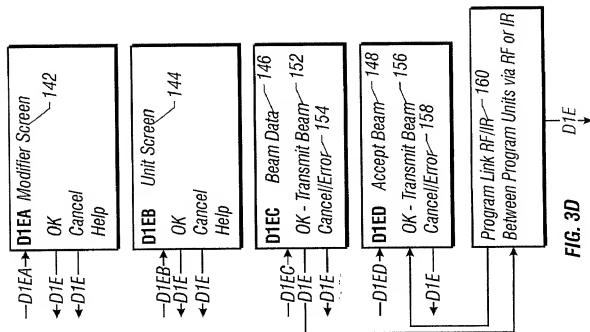


FIG. 3C

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FIG. 4

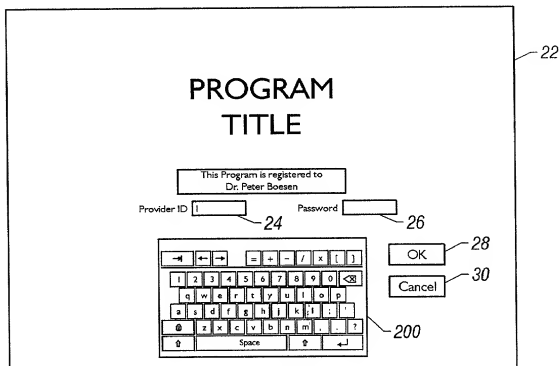


FIG. 5

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Edit Medical Practice Data:

Practice Name: Dr. Peter Boesen
 Address: 1000 73rd Street, STE 18
 City: Des Moines
 State: IA Zip Code: 50311
 Serial Number: 1010101
 Program(w), Program (R): R
 Type of Practice: Large
 Provider #: 1
 Program #: 1
 Password: *****

Repeat Diagnosis on Procedure: ☒
 Show Start/End Time: ☒
 Use Supervisor Reduction Percentage: ☒

OK 178 Cancel 180

200

←	→	↩	↪	↵	↶	↷	↸	↹	↺	↻
1	2	3	4	5	6	7	8	9	0	⌫
q	w	e	r	t	y	u	i	o	p	
a	s	d	f	g	h	j	k	l	;	'
z	x	c	v	b	n	m	.	/	?	
↑	Space								↓	↵

FIG. 6

34

Program Main Menu
 Physician Access Screen For:
 Dr. Peter Boesen

Open Today's Clinic Database 36
 Today's Patient Summaries 38
 Import Data 40
 Tools and Utilities 42
 About Program 44
 Log Off 46

Program Systems, Inc. accepts no responsibility for the accuracy of the codes selected. By moving past this screen, the user accepts full responsibility for all coding.

Copyright Information

FIG. 7

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Please Select a Patient:

Last Name	First Name	MI	Date of Birth	Provider	Encounter	Date	Appt.	Account No.	Action	Result
Barnes, Terry			12/2/1965	I	30032	2/9/00	2:00	100	S	X
Bond, James			10/22/74	I	30011	2/5/00	1:00	208	S	X
Bondman, Robert			8/21/60	I	30010	2/5/00	12:45	6,790.1	S	X
Brown, Linda			2/3/78	I	31020	2/9/00	1:45	900	S	X
Burk, Heather			10/2/43	I	31008	2/5/00	1:00	800	S	X
Carpenter, Alicia			10/21/60	I	31053	2/5/00	3:20	400	S	X
Cross, Jason			3/2/56	I	31052	2/5/00	11:35	70	S	X
Cup, Mary			9/3/43	I	31055	2/5/00	9:00	20	S	X
Douglas, Tom			10/2/73	I	31069	2/5/00	10:00	50	S	X
Dunbar, Lisa			8/21/60	I	31070	2/5/00	12:45	7865.0	S	X
Handley, Raymond			11/21/43	I	31072	2/5/00	6:00	300	S	X
Harvey, Scott			6/3/73	I	31098	2/5/00	1:00	99999	*	
Jones, Martha			11/13/78	I	31093	2/5/00	5:30	75	S	X
Knight, Michele			8/8/73	I	31094	2/5/00	12:45	200	S	X
Loflin, Adrian			8/23/60	I	31099	2/5/00	1:30	5678.1	S	X
Martin, David			3/30/51	I	31067	2/5/00	12:00	80	S	X
Mays, Kelly			10/1/67	I	31008	2/5/00	4:45	60	S	X
McDonald, Alex			6/3/61	I	31903	2/5/00	11:45	100	S	X
Moore, Rudy			11/22/60	I	31100	2/5/00	9:30	4533.0	S	X
Schoor, Stacy			10/2/36	I	31007	2/5/00	12:13	30	S	X
Smith, Emmet			3/30/51	I	31201	2/5/00	5:00	123	S	X
Quail, Dan			4/6/72	I	31029	2/5/00	6:45	120	S	X

50 OK 52 Cancel 54 Add a Patient 58 Edit a Patient 60 Send/Receive 62 Help

Place of Service: 3 Doctor's Office 54 58 Change Place of Service 62

FIG. 8

Facility Selection Screen:

Place of Service Search:

80

- Inpatient Psych. Fac. - M
- Other Med Surg. Fac. - O
- Ambulance - 9
- Military Traic. Fac. - I
- Com. Mental Health CL. - N
- Res. Treatment Cent. - C
- Skilled Nursing Fac. - 8
- Night Care Facility - 6
- Self-Care Pub. He. Cor. - Y
- Ambulance Ref/Mater. - L
- Outpatient Hospital - 2
- Patient's Home - 4
- Emergency Room Hosp. - G
- Comp. OP Rehab. Fac. - s
- Spec. Treatment Fac. - D
- Nursing Home - 7
- Independent Lab. - A
- Day Care Facility - 5
- Ind. Kidney Dis. Cent. - F
- Rural Health Clinic - Z
- Phys. Res. Treat. Ctr. - 0
- Doctors Office - 3
- Inpatient Hospital - I
- Birth Center - H
- Comp. Inpatient Rehab. - X
- Hospice - K
- Custodial Care Fa. - J

Facility Search:

78

- Blood & Plasma Center
- Children's Hospital
- Community Hospital
- Doctors Laboratory
- Health Clinic
- Jefferson Memorial Hosp.
- Lakeland Services
- Mudson General Surgery
- Mudson Convalescent Home
- Mudson General Hospital
- Mudson Surgery Center
- Marionette Nursing & Rest
- Northwest Office

82

84 OK 88 Cancel 90 Help

FIG. 9

[illegible]

FIG. 11

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Patient Procedure and Diagnosis Codes

Account #: 99999 Patient Name: John McComb Appt Time: 12:45

Reason: Ref. Prov: Leland W Groves M.D.

Last Diag: Balance: Print Ins: Other Ins:

Procedure	Modifier	Unit	Diag1	Diag2	Diag3	Diag4
99214			381.02	382.02	995.3	473.2
31237			473.2	473.3	473.0	
11237	50		473.2	473.3	473.0	

140

142 Modifier 146 Send Beam 150 Units 148 Delete Accept Beam 104

Description	Proc.	Description	Proc.	Description	Proc.
REMOVE FOREIGN BODY FROM EAR	69200	ENT Office/Outer Consult	99245	Audiometry, Air & Bone	92553
ENT Office/Outer New Pat	99202	Fiberoptic Laryngoscopy	31575	Acoustic Reflex Decay Test	92549
ENT Office/Outer New Pat	99203	Control Nasal Hemonrhage, Simple	30901	OTOACUSTIC EMISSIONS, LIMITED	92547
ENT Office/Outer New Pat	99204	Control Nasal Hemonrhage, Complex	30903	OTOACUSTIC EMISSIONS, COMPLETE	92548
ENT Office/Outer Exam Pat	99205	Concentration and/or Attention, Mucous	30001	Nasal Rhinology, Simple	31237
ENT Office/Outer Exam Pat	99211	Careful, Maxillary Cavity, Unilateral	69220	Nasal Rhinology, dx	31237
ENT Office/Outer Exam Pat	99212	Remove Impacted Cerumen	69210	Nasal Endoscopy, dx	31231
ENT Office/Outer Exam Pat	99213	Handling & Correlation of Specimen	99000	Assay of Osmolality	83527
ENT Office/Outer Exam Pat	99214	Pure Tone Audiometry, Air Only	92552	Symptomatic, w/Anesth. Unilateral	69633
ENT Office/Outer Exam Pat	99215	Speech Audiometry, Threshold Only	92555	Assay of Phagocytosis	83540
POST OP VISIT	99244	Basis Comprehensive Auditory	92557	Biopsy of Upper Nasal/Throat, Survey	42056
ENT Office/Outer Consult	99241	Speech Audiometry, Complete	92556	Biopsy, Each Additional Lesion	11101
ENT Office/Outer Consult	99242	Symptomatic	92567	BLEPHARCLASTY, LOWER EYE/LID	15250
ENT Office/Outer Consult	99243	Remove Nasal Foreign Body in Office	30105	Excise Benign Oral Cyst/Wedge	42810
ENT Office/Outer Consult	99244	Acoustic Reflex Testing	92558	TYMPANOLYSIS, TRANSCANAL	69550

124 Done Cancel Note Ailment Search Help

FIG. 12

Diagnosis Codes for Selected Procedure:

Procedure Description: Remove Impact Cerumen Code: 69210

IMPACTED CERUMEN 380.4

Move Up Move to Top

Move Down Move to Bottom

Delete Delete All

Description	Diag.	Description	Diag.	Description	Diag.
ASTHMA	493	ACUTE LARYNGOPHARYNGITIS	465.0	ANOSMIA, DISTURBANCES IN TASTE	741.0
ALLERGIC RHINITIS, CAUSE UNSPEC	477.9	ACUTE LARYNGITIS	463	APNIA	784.03
BELLS Palsy	351.0	ACUTE NASOPHARYNGITIS	463.0	APPOINTMENT CANCELLATION	2
BENIGN LESION OF EXTERNAL UR	210.0	ACUTE NASOPHARYNGITIS WITHOUT CO	381.0	ARNOLD CHIARI TYPE I	348.4
ACQUIRED DEFORMITY OF NOSE	738.0	ACUTE OTITIS MEDIA	381.02	ASPERGILLOSIS	117.3
ACUTE TOBITIS	463	ACUTE OTITIS MEDIA, UNSPECIFIED	384.00	ASTHMA, INTERMITTENT	493.1
ASTHMA, UNSPECIFIED	493.9	ACUTE OTITIS MEDIA WITH EFFUSION	384.01	ATTIC REFORMATION OF TYMPANIC	384.22
ABSCESS OF SALIVARY GLAND	527.3	ACUTE OTITIS MEDIA WITH PERFORATION	518.81	ATYPICAL FACIAL PAIN	350.2
ABCESS, SKIN/TOE	684.4	ACUTE SUPPURATIVE OTITIS MEDIA	380.02	ACCIDENTAL DROWNING OR SUBMERSION	930.9
ACCESSORY AUDICLE	744.1	ALLERGY, UNSPECIFIED, NOT ELSEW	995.3	ARPHONIA	784.41
ACNE ROSEA	695.3	ANEBUSAL BONE CYST	732.22	ACUTE INFLAMMATION OF ORBIT	376.6
ACQUIRED STENOSES OF EAR CANAL	380.50	ANOMALIES OF AORTIC ARCH	747.21	ACCIDENT CAUSED BY FIREARM/MAN	929.02
ACTIVE MENIERS DISEASE, COCHLE	386.02	ANOMALIES OF RELATIONSHIP OF JA	524.12	THRUSH (ORAL)	112.0
ACUTE FRONTAL SINUSITIS	461.1	ANOMALY OF EAR WITH IMPURPEN	744.00	MALIGNANT NEOPLASM OF TYP AND	141.2
ACUTE INJECTION OF PINNA	380.11	ANOSMIA	781.81	BENIGN NEOPLASM OF NASOPHARY	210.7

108 OK 110 Cancel 112 Search Help

FIG. 13

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Procedure Code Search:

By Number By Description

Selection: 31237 Nasal/sinus endoscopy, surg

200

31070 Exploration of Frontal Sinus
31075 Sinusotomy Frontal, Unilateral
31084 Sinusotomy Frontal/Flap, Brow Incise
31085 Sinusotomy Frontal, Flap, Coronal
31090 Sinusotomy Combined < 3 Sinuses
31200 Removal of Ethmoid Sinus
31201 Ethmoidectomy, Internal Total
31211 Nasal endoscopy, dx
31213 Nasofibrous endoscopy, dx
31237 Nasofibrous endoscopy, surg
31237.50 Nasofibrous endoscopy, surg
31238 NASAL/SINUS ENDO, CONTROL EPISTAXIS
31240 Nasofibrous endoscopy, surg
31254 ENDO ETHMOIDECTOMY PARTIAL-ANTERIO
31255 Nasal Endoscopy, A & P Ethmoidect-X2

OK Cancel Help

134 136 138

FIG. 14

Diagnosis Code Search:

By Number By Description

Search Selection:

200 116

0119 PULMONARY TUBERCULOSIS, UNSPECIFIED
035 ERYSIPELAS
033.73 HERPES SIMPLEX OTITIS EXTERNA
033.9 HERPES ZOSTER WITHOUT MENTION OF COMPLICATION
054.8 HERPES SIMPLEX WITH UNSPECIFIED COMPLICATION
074.3 HAND, FOOT, MOUTH DISEASE
075 INFECTIOUS MONONUCLEOSIS
077.99 UNSPECIFIED DISEASES OF CONJUNCTIVA DUE TO
078.10 VIRAL WARTS, UNSPECIFIED
079.6 RSV (RESPIRATORY SYNCYTIAL VIRUS)
1 NO SHOW FOR APPOINTMENT
112.0 THURISH (COLIC)
112.82 CANDIDAL OTITIS EXTERNA (OTOMYCOSSIS MONILIAS)
117.3 ASPERGILLOSIS
117.9 OTHER AND UNSPECIFIED MYCOSES

OK Cancel Help

FIG. 15

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Ailment Screen:

Referring Provider Number: 2

Name: Joseph A. Johnson, M.D.

Change Referring Provider 120 Delete Referring Provider 122

Date of 1st Symptom: / /

Date of 1st Consultation: / /

Prior Authorization Number:

OK Cancel Help

118

200

FIG. 16

Referring Provider List:

Select by Last Name: Castiglia M.D., Rhiane D 15

Sandberg M.D.	Richard	H 48
Barnes M.D.	David	D 2
Bennet	Joel	G 15
Bennet M.D.	Thomas	E 25
Carlington M.D.	Sydney	R 16
Carter R.N.	Ronald	C 23
Castiglia M.D.	Rhiane	D 15
Diabernst M.D.	Jason	H 4
Frederick M.D.	Luonda	S 8
Graves M.D.	Daniel	A 6
Johnson M.D.	James	V 14
Johnson M.D.	Catrina	B 2

OK Cancel Help

200

FIG. 17

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Note Entry Screen:

Enter a 20-character note:

200

126 128 130

FIG. 18

Modifier Codes:

Procedure Description	Code
E/M Office/Outpat Estab Pat	99213
Bilateral Procedure	50
Multiple Procedures	51
Assistant Surgeon	80

Move Up Move to Top

Move Down Move to Bottom

Delete Delete All

Description	Mod.	Description	Mod.	Description	Mod.
Microsurgery	20	Repeat Proc Same Dr	76		
Procting Eval & Man	21	Repeat Proc Diff Dr	77		
Unusual Proc Serv	22	Return to OVR	78		
Unrel Eval & Man	24	Unrelated Procedure	79		
Sign/Op Eval & Man	25	Assistant Surgeon	80		
Professional Comp	26	Min Asst Surgeon	81		
Translated Services	32	Asst Surg No Reschrt	82		
Artes. by Surgeon	47	Multiple Modifiers	99		
Bilateral Procedures	50				
Multiple Procedures	51				
Reduced Services	52				
Discontinued Proceed	53				
Surgical Care Only	54				
Post Op Management	55				
Pre Op Management	56				
Related Proc Same Dr	58				
Two Surgeons	62				
Surgical Team	66				

OK Cancel Help

FIG. 19

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Procedure Units and Misc Fields

Procedure Units:

Start Time [HH-MMp.m.]:

End Time [HH-MMp.m.]:

Actual Minutes [999]:

Use if no Start. End Time:

Supervisor Reduction Percentage [99]:

200

← → ↵ = + - / * []

1 2 3 4 5 6 7 8 9 0

q w e r t y u i o p

a s d f g h j k l ; ' <

z x c v b n m , . ?

Space

FIG. 20

100	Douglas, Tom	2/5/00	N	92555	5	\$18.81	1	0.00	A
120	Smith, Emmet	2/5/00	N	99213	1	460	1	0.00	
123	Jones, Martha	2/5/00	N	69210	5	478.24	1	0.00	
123	Quail, Dan	2/5/00	N	99245	1	478.24	1	0.00	
123	Carpenter, Alois	2/5/00	Y	92552	1	478.24	1	150.00	
20	Goodman, Debra	2/5/00	N	31337	1	471.0	1	0.00	
20	Bondman, Robert	2/5/00	N	31575	26	784.49	1	0.00	
20	Dunbar, Lisa	2/5/00	N	69200	1	389.18	1	0.00	
20	Guy, Mary	2/5/00	N	92552	1	389.18	1	0.00	
20	Loftin, Adrian	2/5/00	N	92556	1	389.18	1	0.00	
20	Brown, Linda	2/5/00	N	99213	1	381.20	1	0.00	
200	Handley, Raymond	2/5/00	N	30903	522451	460	1	0.00	
200	Barnes, Terry	2/5/00	N	31575	1	784.41	1	0.00	
200	Clove, Jason	2/5/00	N	69200	1	784.41	1	0.00	
200	Jackson, Alan	2/5/00	N	92553	1	382.02	1	0.00	
30	Maron, David	2/5/00	N	30903	505562	460	1	0.00	
30	Smith, Carrie	2/5/00	N	69200	1	518.61	1	0.00	
30	Maya, Kelly	2/5/00	N	99000	1	2	1	0.00	
40	McDonald, Alex	2/5/00	N	69436	52	381.20	1	0.00	
40	Burk, Heather	2/5/00	N	99213	262221	384.00	1	0.00	
400	Moore, Rudy	2/5/00	N	69200	10	743.21	1	0.00	
43330	Knight, Michele	2/5/00	N	99213	815058	464.1	1	0.00	
50	Teshberger, Wendy	2/5/00	N	99213	1	381.02	1	0.00	
500	Clancy, Tom	2/5/00	N	99244	1		1	0.00	
56781	Roberts, Cherie	2/5/00	N	99214	808162	460	1	0.00	
60	Lanig, Casey	2/5/00	N	69210	1	731.22	1	0.00	

Exit Help

FIG. 21

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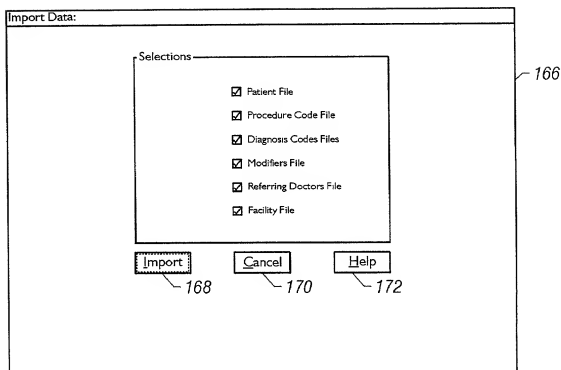


FIG. 22

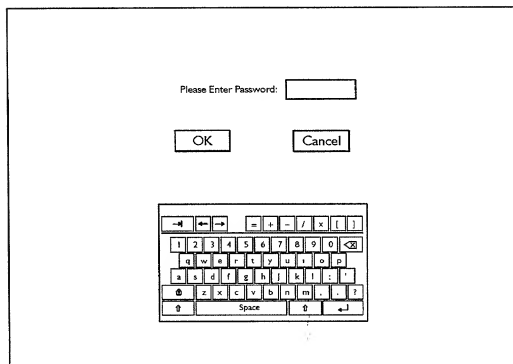


FIG. 23

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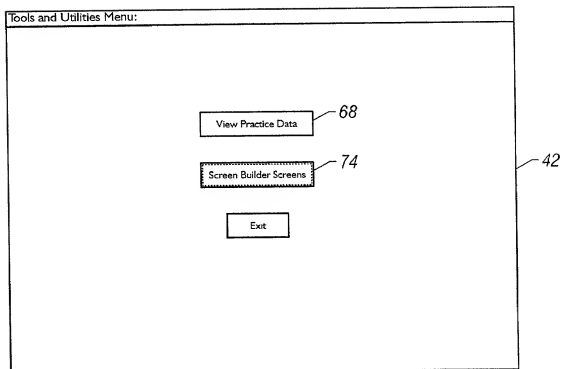


FIG. 24

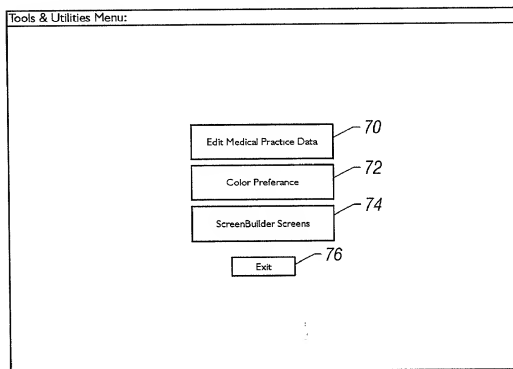


FIG. 25

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View Practice Data:

Practice Name: Peter V. Bossen, M.D., P.C.
 Address: 1000 73rd Street, Suite 18
 City: Des Moines
 State: IA Zip Code: 50311
 Serial Number: 1010101
 Program [w], Program [R]: R
 Type of Practice: Solo
 Provider #: 1
 Program #: 1
 Password: 1

Repeat Diagnosis on Procedure: ☒
 Show Start/End Time: ☒
 Use Supervisor Reduction Percentage: ☒

Cancel

FIG. 26

Color Preferences

Back Color Fore Color

Form ☐ ☐
 Text ☐ ☐
 Label ☐ ☐
 List Box ☐ ☐
 Option Button ☐
 General Button ☐
 OK Button ☐
 Cancel ☐
 Help ☐
 Search Button ☐

Grid Color Options

Heading Heading Back Color Fore Color
 Detail Detail ☐ ☐
 Back Color Fore Grid Back
 Heading Heading Line Lower
☐ ☐ ☐ ☐

☐ Check Box

Back Color Fore Color

Save Colors 182 Cancel 184 User Defaults 186 Program Defaults 190 Help 192

FIG. 27

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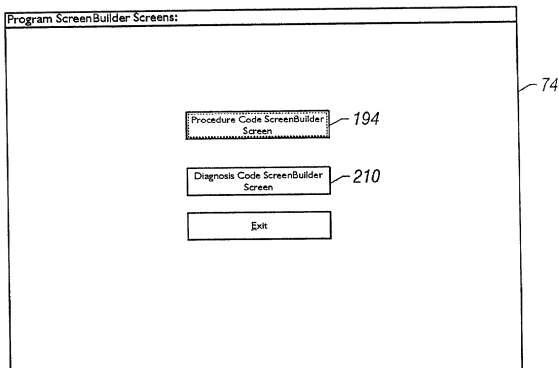


FIG. 28

Procedure Code ScreenBuilder Screen:

Delete Move Up Move Down

By Number By Description

70201 X-Ray sinuses complete

Load CPTs Save CPTs Exit/Cancel Help

198 196

105 copy	59420
155 copy	copy, 155
58 copy	copy, 105
Abraction Treatment of Skin, Cheeks	copy, 58
Acoustic Reflex Decay Test	15781
Acoustic Reflex Testing	92569
ADJUST TO ACCOUNT	92568
Alvelectrony, Curvature of Ovaries	4
Amputate External Ear, Complete	41830
Anest Code	6920
Assay for VIT	000452
	64556

Select Code Selection Help

FIG. 29

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Diagnosis Code ScreenBuilder Screen:

ABSCESS OF SALIVARY GLAND	527.3	A
ABSCESS, RETROPHARYNGEAL	478.24	
ABSCESS, SCROTUM	608.4	
ACCESSORY ALIVIOLE	744.1	
ACCIDENT CAUSED BY CUTTING & PERCING OBJECT	E920	
ACCIDENT CAUSED BY FIREARM/HANDGUN	E922.0	
ACCIDENT DUE TO RECREATIONAL MACHINERY	E919.8	
ACCIDENTAL DROWNING OR SUBMERSION	E910.9	
ACCIDENTS CAUSED BY AGRICULTURE MACHINERY	E919.0	
ACNE NOSCEA	695.3	
ACQUIRED DEFORMITY OF NOSE	738.6	
ACQUIRED STENOSIS OF EAR CANAL, UNSPECIFIED	380.50	
ACTIVE MENIERE'S DISEASE VESTIBULAR	386.03	V

FIG. 30

About Program Title

Application Title: Program

Version: 9.0

Program Inc.
1000 73rd Street, Suite # 18
Des Moines, Iowa 50311
Phone # 1-515-287-0891

FIG. 31

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

COMBINED DECLARATION AND POWER OF ATTORNEY
FOR SOLE INVENTOR

As the below named inventor I hereby declare that my residence, post office address and citizenship are as stated below next to my name. I believe I am the original, first and sole inventor, of the subject matter which is claimed and for which a patent is sought on the invention entitled as follows: POINT OF CARE MEDICAL RECORDS AND BILLING SYSTEM, the specification and drawings of which are attached hereto.

I hereby state that I have reviewed and understand the contents of the above identified specification and drawings, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code Of Federal Regulations, Section 1.56. I further declare that no application for patent or inventor's certificate on this invention has been filed by me, my legal representative or assigns in any country foreign to the United States of America except as identified below:

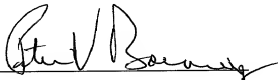
NONE.

And I hereby appoint ZARLEY, McKEE, THOMTE, VOORHEES & SEASE, comprising Donald H. Zarley, Registration No. 18,543; Bruce W. McKee, Registration No. 19,651; Dennis L. Thome, Registration No. 22,497; Michael G. Voorhees, Registration No. 25,715; Edmund J. Sease, Registration No. 24,741; Mark D. Hansing, Registration No. 30,643; Kirk M. Hartung, Registration No. 31,021; Daniel J. Cosgrove, Reg. No. 36,770; Michael R. Crabb, Registration No. 37,298; Heidi Sease Nebel, Registration No. 37,719; Wendy K. Marsh, Registration No. 39,705; Jeffrey D. Harty, Registration No. 40,639; James A. Napier, Registration No. 42,025; Mark Ziegelbein, Registration No. 43,307; Patricia L. Ades, Registration No. 44,496; Timothy J. Zarley, Registration No. 45,253; Kirk W. Goodwin, Registration No. 46,161; and R. Scott Johnson, Registration No. 45,792, 801 Grand Avenue, Suite 3200, Des Moines, Iowa 50309, Telephone 515-288-3667, as my attorneys to prosecute this application and to transact all business in the Patent Office connected therewith.

I hereby declare that all statements made herein are of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

SIGNATURE

Inventor's signature: _____



Date: 4-25-2000

Full name of sole inventor: Peter V. Boesen, M.D.

Residence: Des Moines, Iowa

Post Office Address: 4026 Beaver Ave.
Des Moines, IA 50310

Country of Citizenship: United States of America

This declaration ends with this page.